CHAPTER 5.0
CUMULATIVE IMPACTS

5.1 INTRODUCTION

CEQA requires an analysis of the reasonably foreseeable cumulative impacts from existing and proposed projects. "Cumulative impacts" are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines Section 15355). The cumulative impacts analysis is a two-part analysis; first, an agency must ask whether the combined impacts of the projects, taken together, will constitute a significant cumulative impact. If this question is answered affirmatively, the agency must ask whether a particular project's incremental contribution to that impact is cumulatively considerable. This two-step approach is reflected in the CEQA Guidelines, which state that "[w]hen assessing whether a cumulative effect requires an EIR, the lead agency shall consider whether the cumulative impact is significant and whether the effects of the project are cumulatively considerable" (CEQA Guidelines, Section 15064(d)(i)(1)).

CEQA Guidelines allow for the preparation of a list of past, present, and reasonably anticipated future projects as a viable method of determining cumulative impacts. Also allowed is the use of projections contained in adopted general plans or related planning documents. The discussion in this section utilizes both approaches. Consistent with CEQA, this discussion is guided by the standards of practicality and reasonableness.

When considering the programmatic components of the project, the most appropriate approach to the cumulative analysis is to consider planning-level documents (e.g., regional plans, master plans, Specific Plans, City of Carlsbad General Plan, etc.). Thus, the cumulative study area for the DMP Update is the region and the city at-large. In addition, the cumulative analysis for the DMP Update considers a long-range planning horizon, given implementation of the DMP Update is anticipated in phases or increments over a 30-year planning timeframe. When considering the projects to be implemented in the short term, this EIR considers not only the programmatic documents described above, but also private and public projects anticipated to occur in the near term in Basin B, where the individual drainage improvements (projects components B and BN) would occur.

Table 5-1 summarizes the cumulative projects considered for this analysis. Figure 5-1 shows the general locations of the projects included in Table 5-1. This analysis evaluates projects that,

Table 5-1
Summary of Cumulative Projects

Project Name	CEQA Documentation Status[1]	Proposed	Approved (Not Yet Under Construction	Approved (Under Construction)	Completed	Project Description	Significant Impacts Identified during Environmental Review
La Costa Town Square	Draft EIR 01-02 in progress (not available for public review)	X				The project involves the construction and operation of a mixed-use project that includes an estimated 302,000-square-foot (sq ft) community shopping center, a 53,000 sq ft cinema, a 30,193 sq ft tenant warehouse, 63 single-family detached residential units, 120 multi-family residential units, and 45 affordable housing multi-family residential units.	To be determined.
Villages of La Costa Master Plan	Final EIR 98-07 October 2001			X		The 1,866.4-acre project consists of three major planning areas: (1) The Greens, which encompasses approximately 660.7 acres and is located approximately 2,500 feet south of Palomar Airport Road, east of El Camino Real, north of Alga Road, and west of Unicornio Street; (2) The Ridge, which includes approximately 493.1 acres and is located southeast of El Fuerte Street and Alga Road and northwest of San Marcos Creek; and (3) The Oaks, which encompasses approximately 712.6 acres and is located on both sides of Rancho Santa Fe Road.	*Significant Unmitigable (Cumulative):* • Visual Quality/Aesthetics • Transportation • Noise • Air Quality • Hydrology/Water Quality/Drainage *Significant Unmitigable (Direct):* • Landform alteration *Mitigated to a Less Than Significant Level:* • Visual Quality and Aesthetics • Biological Resources • Archaeological Resources • Paleontological Resources • Transportation

Table 5-1. Summary of Cumulative Projects (Continued)

Project Name	CEQA Documentation Status[1]	Proposed	Approved (Not Yet Under Construction	Approved (Under Construction)	Completed	Project Description	Significant Impacts Identified during Environmental Review
							• Noise • Air Quality • Geology/Soils • Hydrology, Water Quality & Drainage • Public Facilities and Services • Human Health and Safety Hazards
Ponto Beachfront Village Vision Plan	Draft EIR 05-05 (April 2007)	X				The Vision Plan designates six distinct character areas (Mixed Use Center, Beachfront Resort, Townhouse Neighborhood, Village Hotel, Live-Work Neighborhood, and Garden Hotel) for development of the 130-acre Ponto area, located south of of Poinsettia Lane, east of the South Carlsbad State Beach and Campground, north of the Batiquitos Lagoon and La Costa Avenue, and west of the San Diego Northern Railroad.	To be determined.
Alga Norte Community Park	Negative Declaration		X			A 33-acre master planned community park located at the northwest of the intersection of the future alignment of Poinsettia Lane and Alicante Road, and east of El Camino Real. The park will include amenities such as aquatic facilities, a skatepark, half-court basketball, ballfields, and a tot-lot.	No significant impacts were identified.
The Palomar Forum/Raceway	MND December 2001			X		A 50-acre industrial park located at the northeast corner of Melrose Dive and Palomar Airport Road.	No significant impacts were identified.

Table 5-1. Summary of Cumulative Projects (Continued)

Project Name	CEQA Documentation Status[1]	Proposed	Approved (Not Yet Under Construction	Approved (Under Construction)	Completed	Project Description	Significant Impacts Identified during Environmental Review
Bressi Ranch Master Plan	Final Program EIR 98-04 July 2002			X		This master plan development includes 623 residential units and 2.1 million sq ft of industrial, mixed-use, and commercial property. It is located within Zone 17 of the LFMP at the southeast corner of El Camino Real and Palomar Airport Road.	*Significant Unmitigable Impacts (Direct and Cumulative):* • Air Quality *Mitigated to a Less Than Significant Level:* • Traffic/Circulation • Air Quality • Noise • Geology/Soils • Biological Resources • Cultural Resources • Visual/Aesthetics/Grading • Public Services and Utilities • Water Quality/Hydrology • Hazardous Materials & Hazards
Carlsbad Raceway Business Park	MND 2001			X		This project consists of 1.5 million sq ft of phased industrial development. Involves a subdivision of 146.3-acre parcel into 25 industrial lots and 3 open space lots. The project is located at Palomar Airport Road and Melrose Drive. Approximately 50 percent (72 acres) of the site is slated for open space.	No significant impacts were identified.

Table 5-1. Summary of Cumulative Projects (Continued)

Project Name	CEQA Documentation Status[1]	Proposed	Approved (Not Yet Under Construction	Approved (Under Construction)	Completed	Project Description	Significant Impacts Identified during Environmental Review
Municipal Golf Course	Final EIR June 2000			X		An 18-hole championship golf course, which is scheduled to open in 2007. The golf course will be located along the north side of Palomar Airport Road at Hidden Valley Road. Half of the 400-acre course will be preserved for habitat and will help tie together more than 1,000 acres of open space in the central part of the city.	*Significant Unmitigable Impacts (Cumulative):* • Air Quality • Traffic/Circulation *Mitigated to a Less Than Significant Level:* • Biological Resources • Air Quality • Water Quality/Hydrology • Archeological Resources • Paleontological Resources • Landform Alteration/Grading • Public Services and Utilities
Carlsbad Oaks North Specific Plan	Final EIR 98-08 October 2002			X		A Specific Plan that provides regulations for the development of a 194.5-acre industrial park that includes 23 industrial use lots with some auxiliary commercial uses and the preservation of three open space lots, totaling 219.5 acres.	*Significant Unmitigable (Cumulative):* • Transportation/Traffic • Air Quality *Significant Unmitigable (Direct):* • Transportation/Traffic • Air Quality • Biological Resources *Mitigated to a Less Than Significant Level:* • Land Use and Planning • Noise

Table 5-1. Summary of Cumulative Projects (Continued)

Project Name	CEQA Documentation Status[1]	Proposed	Approved (Not Yet Under Construction	Approved (Under Construction)	Completed	Project Description	Significant Impacts Identified during Environmental Review
							• Geology/Soils • Hazards and Hazardous Materials • Hydrology/Water Quality • Cultural Resources • Paleontological Resources • Public Services and Utilities • Aesthetics
Cantarini Ranch/Holly Springs Developments	Final EIR 02-02 October 2004		X			The project sites are located east of El Camino Real and south of Cannon Road. The project involves the development of residential subdivisions on approximately 276 acres within the LFMP Zone 15. The Cantarini Tentative Map proposed development of 105 single-family units and 80 multi-family units on 156.14 acres would be placed under a conservation easement as permanent open space. The Holly Springs Tentative Map would develop a total of 43 single-family residential lots on 0.5-acre lots over approximately 24.40 acres on the 119.85-acre property.	*Significant Unmitigable (Cumulative):* • Air Quality *Mitigated to a Less Than Significant Level:* • Biological Resources • Air Quality (Direct) • Noise • Water Quality • Geology/Soils • Hazardous Materials and Hazards • Archaeological Resources • Paleontological Resources
Vmax Riprap Removal[2]	Notice of Exemption			X		The project involves the removal of the Vmax riprap on the south bank of Calavera Creek across from the weir wall located at the outlet for the existing Basin BJB. The weir wall has caused significant erosion of the channel bank, exposing riprap. The	None identified.

Table 5-1. Summary of Cumulative Projects (Continued)

Project Name	CEQA Documentation Status[1]	Proposed	Approved (Not Yet Under Construction	Approved (Under Construction)	Completed	Project Description	Significant Impacts Identified during Environmental Review
						project would also involve stabilization of the channel banks following the riprap removal.	
Robertson Ranch Master Plan Development	Final EIR 03-03 April 2006			X		A majority of the 398-acre site is located on the north side of El Camino Real between Tamarack Avenue and Cannon Road; however, the project site also includes 39.7 acres of land north of College Boulevard and 9.5 acres south of Cannon Road directly adjacent to the Rancho Carlsbad residential community. The site is divided into two villages, which include a variety of land uses such as residential uses, commercial uses, an elementary school, a community park, recreational vehicle storage, trails, private recreation areas, water quality treatment facilities and open space.	*Significant Unmitigable:* • Transportation/Circulation • Air Quality *Mitigated to a Less Than Significant Level:* • Air Quality (short-term construction) • Noise • Biological Resources • Cultural Resources • Geology/Soils • Paleontological Resources • Hazardous Materials and Hazards • Hydrology and Water Quality • Public Services and Utilities • Grading and Aesthetics
Calavera Hills Master Plan Phase II, Bridge and Thoroughfare District No. 4, & Detention Basins	Final EIR 98-02 January 2002			X		The project, located in the northeast quadrant of the city, south of SR 78 and east of El Camino Real, consists of 1,019 acres of urban villages and open space, including 19 residential villages (with over 700 homes) a community park, 2 school sites, 2 community facility sites, as well as areas for environmental mitigation.	*Significant Unmitigable (Cumulative):* • Traffic Circulation *Mitigated to a Less Than Significant Level:* • Land Use • Landform/Visual Quality • Traffic Circulation • Noise

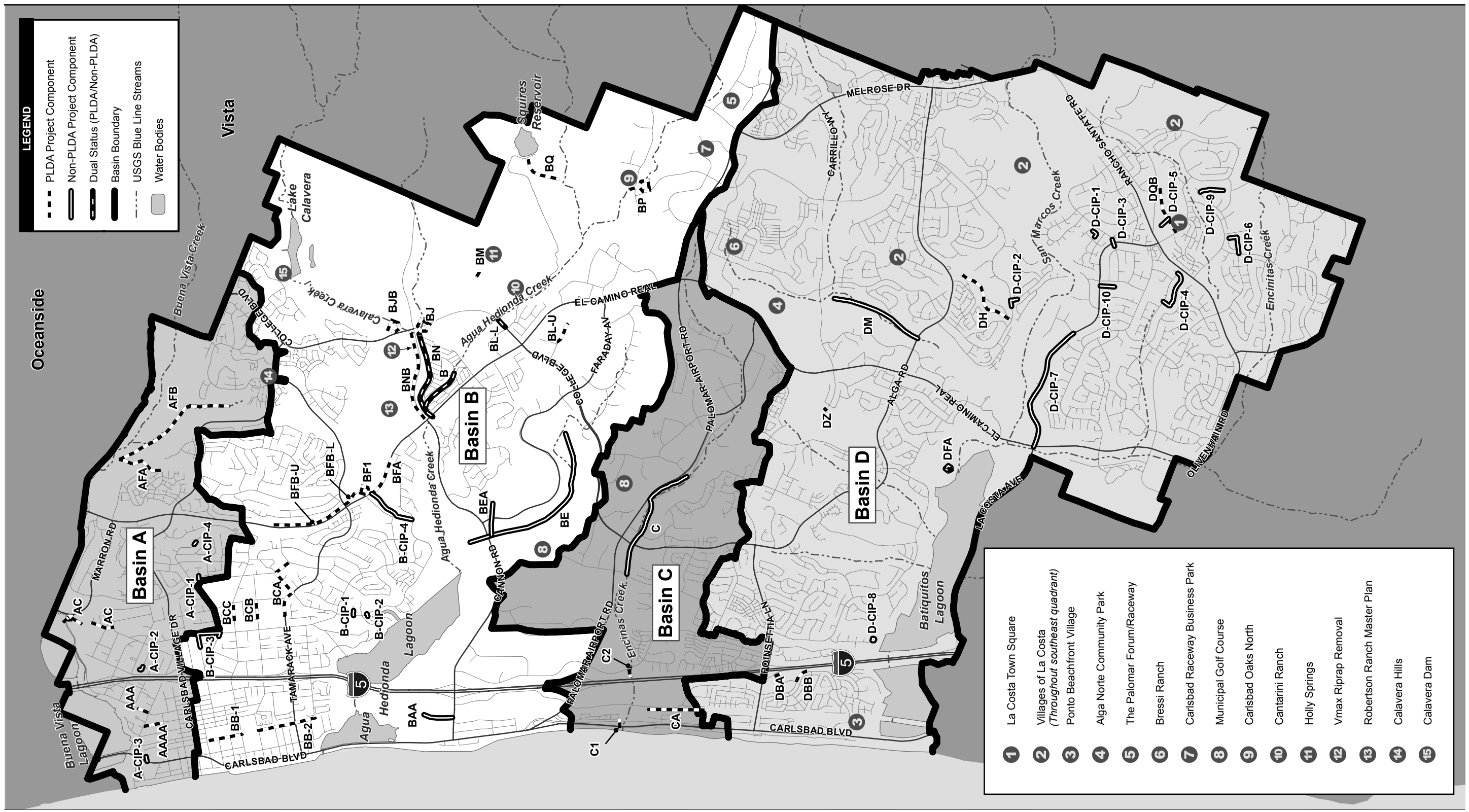
Table 5-1. Summary of Cumulative Projects (Continued)

Project Name	CEQA Documentation Status[1]	Proposed	Approved (Not Yet Under Construction	Approved (Under Construction)	Completed	Project Description	Significant Impacts Identified during Environmental Review
							• Agriculture • Public Facilities • Biological Resources • Archaeology/Cultural Resources • Paleontology • Hydrology • Air Quality • Geology
Calavera Dam Modifications	Mitigated Negative Declaration (April 2006)		X			This City project includes upgrade of the outlet structure for Calavera Dam. The new outlet structure and system of valves will allow the lake to be drawn down in anticipation of large storm events, resulting in a lower peak flow out of Lake Calavera.	*Mitigated to a Less Than Significant Level:* • Biological Resources • Cultural Resources • Hydrology/Water Quality

Source: City of Carlsbad 2006 and 2007

[1] Environmental documents are available for review at the City Planning Department counter.

[2] Vmax Riprap Removal is located adjacent to project components B and BN. The cumulative analysis for this project is included in the analysis for project-specific DMP components. No City permits are required for this project.



Source: AirPhotoUSA 2006; SanGIS 2006; USGS Hydrography 1997

4,000 2,000 0 4,000 Feet

Scale: 1:48,000; 1 inch = 4,000 feet

Figure 5-1
General Location of Master Planning and Other Related Projects

Path: P:\2004\04080135 Carlsbad Drainage Master Plan\5GIS\Mxd\PEIR\Land_Use\Master Planning_Projects.mxd, 05/08/07, marraccinib

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considered together with the proposed DMP Update, would result in a cumulatively significant environmental impact. From the time of preparation of this EIR, additional projects related to the DMP Update may be proposed or anticipated within the city, which may also result in potentially significant environmental impacts. The cumulative analysis evaluates the cumulative contribution of the DMP Update to impacts to environmental issue areas for which the DMP Update itself would result in potentially significant impacts. Thus, the analysis addresses the cumulatively considerable impacts of the DMP Update, regardless if additional projects are considered.

In addition to the relevant projects identified in Table 5-1, numerous other development projects are occurring or are anticipated to occur throughout the city. The General Plan establishes the maximum intensity of development that can occur within the city (with the exception of additional units granted by the City through density bonuses for affordable housing projects). Implementation of other development projects is anticipated to occur consistent with the City's General Plan and other relevant planning documents and regulations (e.g., LCP, HMP). The direct, indirect, and cumulative environmental impacts resulting from development citywide are evaluated in the Master EIR for the General Plan Update (City of Carlsbad 1994). The Master EIR identified significant cumulative impacts to transportation/circulation and air quality resulting with implementation of the General Plan Update. This analysis incorporates by reference the environmental impact analysis performed in the Master EIR for the General Plan Update, which is available for review at the City of Carlsbad Planning Department.

5.2 CUMULATIVE IMPACTS ANALYSIS

5.2.1 Program Level

The cumulative impacts of the large-scale planning projects identified in Table 5-1, as well as the cumulative impacts identified in the General Plan, are evaluated in conjunction with those of the proposed DMP Update project components. This analysis also takes into consideration the operational and maintenance activities that would occur over the long-term implementation of the DMP Update.

5.2.1.1 Land Use

The General Plan establishes the maximum intensity of development that can occur within the city. It is assumed that future development in the city would occur in a manner consistent with the City's General Plan, Growth Management Plan, and other land use planning documents and

regulations. However, implementation of the DMP Update would not alter planned land use conditions in the city beyond what is envisioned in the General Plan. For these reasons, the DMP Update would not contribute to cumulative land use impacts in Carlsbad.

5.2.1.2 Agricultural Resources

Agriculture is an important and limited resource in the city. The city has several policies that are intended to preserve agricultural lands while planning for the possible future transition of the land to urban uses, as consistent with the City's General Plan. The General Plan Open Space and Conservation Element intends to secure agricultural lands and promote long-term economic viability of agricultural land uses. However, the projected pattern of development in the city is such that extensive areas generally required for agricultural operation are unlikely to remain available in the long term, and development is likely to occur. The proposed DMP Update components would not involve the conversion of Important Farmlands or existing agricultural uses to nonagricultural uses and would not conflict with any Williamson Act contracts in the city. Therefore the DMP Update would not contribute to cumulative agricultural resource impacts.

5.2.1.3 Visual Resources

Carlsbad is a predominantly residential community, with a visual landscape consisting of urban uses, infrastructure, natural areas, hillsides, and coastal views. Cumulatively, development will result in the continued alteration of the visual setting and topography of the area. Local planning policies and development standards, including specific policies related to visual resources and grading, would reduce potential aesthetic impacts of individual projects and developments. Impacts to visual resources are identified for cumulative projects in the city (i.e., Villages of La Costa Master Plan). However, the DMP Update would not result in a substantial change to the visual environment, either individually, or in consideration of the cumulative projects. For this reason, the DMP Update would not contribute considerably to a cumulative visual impact.

5.2.1.4 Transportation/Circulation

The DMP Update would result in short-term traffic impacts during construction and maintenance activities. As the project components would be phased over several decades, cumulative short-term construction-related impacts generated in conjunction with other development projects would be minimized through coordination and implementation of traffic control plans at the time of construction with the City Engineering Department. Encroachment permits are required for

all construction affecting public rights-of-way. This permitting process is the control point for the maximum possible reduction of cumulative short-term traffic impacts and is designed to reduce direct and cumulative impacts to below a level of significance. Although the projects identified in Table 5-1 generate traffic conditions that may be cumulatively significant, the proposed program level DMP Update would not result in permanent contributions to this cumulative baseline. For these reasons, the DMP Update would not contribute considerably to a significant transportation or circulation impact.

5.2.1.5 Air Quality

Strategies for the control of both point sources and mobile pollution generation are the responsibility of the SDAPCD. SDAPCD rules and regulations apply uniformly throughout the District and the rest of the SDAB and to all potential sources of pollutant emissions. Thus, air pollution control in the region is applied on a cumulative basis.

Development forecasted for the San Diego region will generate increased emission levels from transportation and stationary sources. Planned development projects in Carlsbad (see Table 5-1) would contribute to cumulative short-term air quality impacts due to construction and/or long-term cumulative impacts resulting from increases in traffic. The air quality effects of the DMP Update would be limited to short-term effects. Temporary emissions generated from construction equipment and fugitive dust during construction activities would be minimized by incorporation of the dust control and construction emission control features included in Table 3-6. For these reasons, the DMP Update components would not result in a significant contribution to cumulative air quality impacts.

5.2.1.6 Noise

As Carlsbad becomes increasingly urbanized, increases in ambient noise levels resulting in localized effects are inevitable. These increases would be attributed primarily to traffic noise, as roads are constructed to serve new development, and to point sources of noise associated with urban development. The City's Noise Ordinance and Noise Guidelines Manual are intended to control exposure of residents to excessive or prolonged increases in noise levels. The projects proposed in the DMP Update have the potential to temporarily contribute to the generation of noise during construction and maintenance activities. However, they would not result in any long-term noise effects. Regulation and noise attenuation for other noise sources consistent with the City's Municipal Code, General Plan, Airport LUCP, and Noise Guidelines Manual would ensure that the cumulative noise impacts in the city are not substantial over the long term. While

implementation of the DMP Update could temporarily generate noise in localized areas, this contribution to the overall noise environment would not be noticeable. In addition, the recommended mitigation measures contained in Section 4.6 of this EIR would reduce these noise impacts to the extent feasible to ensure localized impacts are minimized. For these reasons, the DMP Update would not result in a significant contribution to cumulative noise impacts.

5.2.1.7 Recreation

No direct or indirect impacts to recreational services would occur with implementation of the DMP Update. Additionally, the projects identified in Table 5-1 would not have significant cumulative impacts to recreational services. Therefore, the DMP Update would not contribute to cumulative impacts to recreational services in the city.

5.2.1.8 Geology/Soils

Cumulative development in the region would result in an increase in population and development that would be exposed to potential hazardous geological conditions. However, neither the DMP Update nor the cumulative projects identified in Table 5-1 would result in substantial effects related to geology or soils. Geologic conditions in the region would essentially remain the same regardless of implementation of the DMP Update. Therefore, the cumulative contribution to impacts related to geology and soils is considered less than significant.

5.2.1.9 Hydrology and Water Quality

Water quality control measures identified in Table 3-6 and project-specific BMPs required in project-specific SWPPPs would minimize sediment loads and downstream erosion resulting from implementation of the DMP Update. In addition, the DMP Update would improve overall long-term water quality and drainage within the city's four drainage basins, as described in Section 4.9. The DMP Update would not substantially increase the amount of impervious surfaces and would serve to improve overall flood control and storm water conveyance in the city. In consideration of these effects, the proposed DMP Update would result in cumulatively beneficial effects to water quality, storm water conveyance, and flood control. For these reasons, the project would not significantly contribute to a cumulative hydrology or water quality impact.

5.2.1.10 Biological Resources

Historically, impacts to biological resources, such as loss of wetlands, have resulted in permanent loss of sensitive habitats in the city (UCSD 2006). However, the City is participating in the MHCP, which is intended to mitigate for the biological impacts of planned growth through the approval of a streamlined regulatory approach for the issuance of federal and state permits and other authorizations under federal and state law. The end result of the MHCP planning process is to provide a regional conservation plan to mitigate the cumulative biological effects of growth in the region. Carlsbad has developed the HMP within the MHCP framework.

Prior to implementation of the mitigation measures recommended in this EIR, the DMP Update would result in potentially significant long-term impacts to biological resources. Impacts to biological resources associated with proposed DMP Update projects would be significant when considered together with other development projects in Carlsbad and the region, due to loss of sensitive habitat. However, the mitigation measures recommended in Section 4.10 of this EIR have been developed consistent with the Carlsbad HMP, which takes a regional and cumulative approach to establishing mitigation requirements. Mitigation would be accomplished through the assessment and mitigation of project-specific impacts as individual components of the DMP Update are implemented, consistent with the Carlsbad HMP. For this reason, although the impacts caused by the DMP Update would contribute to significant biological impacts in the region and would be significant prior to mitigation, implementation of mitigation measures Bio-1 through Bio-8 would reduce these impacts to a less than significant level, both directly and in consideration of the cumulative context.

5.2.1.11 Cultural Resources

Many areas within Carlsbad are known to contain cultural resources. As noted in Table 5-1, several of the cumulative projects have been identified as having potential impacts to cultural or archaeological resources. However, these types of impacts are localized and can be addressed through the implementation of feasible mitigation measures. These measures were required for each of the projects listed in Table 5.1, where the potential for cultural resource impacts was present. With the implementation of these measures, the cumulative impacts to cultural resources are considered less than significant. Similarly, potentially significant impacts to cultural resources from proposed DMP Update components would be reduced to a less than significant level with the mitigation measures recommended in Section 4.11. For these reasons, the project would not result in a considerable contribution to a significant cumulative cultural resource impact.

5.2.1.12 Paleontological Resources

Geologic formations within Carlsbad have the potential to contain paleontological resources. As noted in Table 5-1, several of the cumulative projects have been identified as having potential impacts to paleontological resources. However, these types of impacts are localized and can be addressed through the implementation of feasible mitigation measures. These measures were required for each of the projects listed in Table 5.1, where the potential for paleontological impacts was present. With the implementation of these measures, the cumulative impacts to paleontological resources were less than significant. Similarly, potentially significant impacts to paleontological resources from proposed DMP Update components would be reduced to a less than significant level with the mitigation measures recommended in Section 4.11. For these reasons, the project would not result in a considerable contribution to a significant cumulative paleontological resource impact.

5.2.2 Project Level

5.2.2.1 Land Use

Consistent with the development envisioned by the General Plan, land uses in Carlsbad will change substantially as development occurs consistent with the City's development policies. It is assumed that future development in the city is occurring in a manner consistent with the City's General Plan, Growth Management Plan, and other land use planning documents and regulations. The General Plan establishes the maximum intensity of development that can occur within the city. Therefore, the project level DMP Update components B and BN would not contribute to significant cumulative land use impacts in Carlsbad.

5.2.2.2 Agricultural Resources

The proposed dredging and improvements in Agua Hedionda and Calavera creeks (components B and BN) would not involve the conversion of Important Farmlands or existing agricultural uses to nonagricultural uses and would not conflict with any Williamson Act contracts. Therefore, these project components would not contribute to cumulative agricultural resource impacts.

5.2.2.3 Visual Resources

Proposed project level DMP components B and BN would potentially result in short-term visual impacts during dredging and grading activities and from equipment setup at upland staging areas or construction vehicles on temporary access roads. However, these impacts would be temporary and localized. Proposed project level DMP components would not result in long-term impacts to scenic vistas or corridors or permanently degrade the visual character of the surrounding area. Following completion of the proposed channel improvements, landscaping opportunities will exist within Agua Hedionda and Calavera creeks. Landscaping of the project site will serve to establish native trees adjacent to the creek banks, resulting in an overall visual improvement within the project area. No permanent impacts to visual resources would occur from implementation of the improvements in Agua Hedionda and Calavera creeks. Although cumulative impacts to visual resources are identified for cumulative projects in the city (i.e., Villages of La Costa Master Plan), project level DMP components would not result in a substantial change to the visual environment. For this reason, the DMP Update would not contribute considerably to a cumulative visual impact.

5.2.2.4 Transportation/Circulation

The construction, dredging, and maintenance activities in Agua Hedionda and Calavera creeks (components B and BN) would cause temporary traffic effects, which would be minimized through implementation of the traffic control measures. Potentially significant cumulative traffic circulation impacts could result over the short term if multiple projects were under construction simultaneously and in the same general location (e.g., Robertson Ranch). Cumulative short-term impacts could be minimized through coordination and implementation of traffic control plans at the time of construction with the City Engineering Department. Encroachment permits are required for all construction affecting public rights-of-way. This permitting process is the control point for the maximum possible reduction of cumulative traffic impacts and is designed to reduce direct and cumulative impacts to below a level of significance. Although the projects identified in Table 5-1 generate traffic conditions that may be cumulatively significant, the activities proposed within Agua Hedionda and Calavera creeks would not result in permanent contributions to this cumulative baseline. For these reasons, these project level components would not contribute considerably to a significant transportation or circulation impact.

5.2.2.5 Air Quality

Planned development projects in the surrounding area (e.g., Robertson Ranch) would contribute to short-term cumulative air quality impacts due to construction activities and long-term cumulative impacts due to increased traffic. Development forecasted for the San Diego region will generate increased emission levels from transportation and stationary sources not only locally, but also regionally. Planned development projects in Carlsbad (see Table 5-1) would contribute to cumulative short-term air quality impacts due to construction and/or long-term cumulative impacts resulting from increases in traffic. The air quality effects of the Agua Hedionda and Calavera creeks projects would only be short-term. Temporary emissions generated from construction equipment and fugitive dust during construction activities would be minimized by incorporation of the dust control and construction emission control features. For these reasons, the project level DMP Update components would not result in a significant contribution to cumulative air quality impacts.

5.2.2.6 Noise

Temporary noise from construction and maintenance activities for proposed project level DMP Update components has the potential to temporarily contribute to the generation of noise within the localized area of the projects. However, these activities would not result in any long-term noise impacts. The City's Municipal Code, General Plan, Airport LUCP, and Noise Guidelines Manual are intended to control exposure of residents to excessive or prolonged increases in noise levels. Regulation and noise attenuation for other noise sources consistent with the City's regulatory documents above would ensure that the cumulative noise impacts in the City are not substantial over the long term. In addition, the projects would incorporate measures consistent with the City's Municipal Code and Noise Guidelines Manual to address anticipated noise effects. While implementation of the project level DMP Update components could temporarily generate noise in localized areas, this contribution to the overall noise environment would not be noticeable or result in long-term changes in the noise environment. For these reasons, these potential effects would not be cumulatively considerable.

5.2.2.7 Recreation

No impacts to recreational facilities would occur from proposed project level DMP Update components. Additionally, the projects identified in Table 5-1 would not result in significant cumulative impacts to recreational services. Therefore, the project level components would not contribute to cumulative impacts to recreational services in the city.

5.2.2.8 Geology/Soils

Neither the project level DMP Update components nor the cumulative projects identified in Table 5-1 would result in substantial effects related to geology or soils. Geologic conditions in the region would essentially remain the same regardless of implementation of the project level DMP Update components. Therefore, the cumulative contribution to impacts related to geology and soils is considered less than significant.

5.2.2.9 Hydrology and Water Quality

Water quality control measures identified in Table 3-6 and project-specific BMPs required in project-specific SWPPPs would minimize sediment loads and downstream erosion resulting from implementation of project level DMP Update components. In addition, implementation of project level DMP Update components would improve overall long-term water quality and drainage within Agua Hedionda and Calavera creeks, and downstream to Agua Hedionda Lagoon, as described in Section 4.9. The project level DMP Update components would not substantially increase the amount of impervious surfaces and would serve to improve overall flood control and storm water conveyance in the project vicinity. In consideration of these effects, the proposed DMP Update and the Basin B projects would result in cumulatively beneficial effects to water quality, storm water conveyance, and flood control. For these reasons, the project level components would not significantly contribute to a cumulative hydrology or water quality impact.

5.2.2.10 Biological Resources

Prior to the implementation of the mitigation measures recommended in this EIR, project-specific impacts associated with dredging and improvements to Agua Hedionda and Calavera creeks would result in potentially significant impacts to biological resources. These impacts would also be significant when considered together with other development projects in Carlsbad and region, due to loss of sensitive habitat. However, the mitigation measures recommended in Section 4.10 of this EIR have been developed consistent with the Carlsbad HMP, which takes a regional and cumulative approach to establishing mitigation requirements. Mitigation would be accomplished through the assessment and mitigation of project-specific impacts associated with dredging and improvements to Agua Hedionda and Calavera creeks consistent with the ratios established in the Carlsbad HMP. For this reason, although the impacts caused by the Agua Hedionda and Calavera creeks projects would contribute to significant biological impacts in the region and would be significant prior to mitigation, implementation of mitigation measures Bio-1

through Bio-8 would reduce these impacts to a less than significant level, both directly and in consideration of the cumulative context.

5.2.2.11 Cultural Resources

No impacts to cultural resources are anticipated to occur from proposed project level DMP Update components. Therefore, the project level components would not contribute to cumulative impacts to cultural resources.

5.2.2.12 Paleontological Resources

No impacts to paleontological resources are anticipated to occur from proposed project level DMP Update components. Therefore, the project level components would not contribute to cumulative impacts to paleontological resources.